Work Order ID 63415

October 29, 2010 12:14:00 PM

Item ID: D4126-1
Revision ID: PRELIM
Item Name: Rotor Brake Disc

Accept **Setup Start** **Stop**

Start Date: 10/29/10 **Start Qty:** 1.00
Required Date: 11/30/10 **Req'd Qty:** 1.00
Reference:

Cust Item ID:
Customer:

Approvals: **Process Plan:** CY **Date:** 10/10/29 **Tooling:** _____ **Date:** _____
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Run Start **Stop**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr D4126	**Revision Nbr** PA1								
100 Purchasing	PURCHASING	0.00							
Purchasing	**Memo** Issue P/O: 12840 Possible Suplier:ELPA Material release note required	0.00							
110 Packaging	Receive & Inspect for Damage & Mat'l Certs	0.00							
Packaging	**Memo** Ensure material certification is attached	0.00							
120 QC	QC5- Inspect part completeness to step on W/O	0.00							
Quality Control	**Memo**	0.00							

BJ 10-10-29 (1)

10/12/3 (1)

— inspect to PA1 Dry only 8/11/10 (H)

POSITIVE RECALL

* Rotor Bottle is not Balanced only for testing.

PRELIMINARY ISSUE

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 63415

October 29, 2010 12:14:00 PM

Item ID: D4126-1
Revision ID: PRELIM
Item Name: Rotor Brake Disc

Start Date: 10/29/10 **Start Qty:** 1.00
Required Date: 11/30/10 **Req'd Qty:** 1.00
Reference:

Accept

Setup Start / Stop

Cust Item ID:
Customer:

Run Start / Stop

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Identify as per dwg & Stock Location: EA	0.00							
Packaging									
Packaging	**Memo**	0.00 ship to Eagle attn: Harvey. Charge to RD13325AA				CL	11/01/11		X1
140	QC21- Final Inspection - Work Order Release	0.00							
QC									
Quality Control	**Memo**	0.00							

POSITIVE RECALL
EFFECTIVE 10.1029 AUTH
RELEASED DATE

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Picklist Print

October 29, 2010 12:13:59 PM

Work Order ID: 63415

Parent Item: D4126-1

Parent Item Name: Rotor Brake Disc

Start Date: 10/29/10 **Required Date:** 11/30/10

Start Qty: 1.00 **Required Qty:** 1.00

Comments: IPP REV:A NEW ISSUE 10-10-29 JLM VERIFIED:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D4126-1P Rotor Brake Disc		Purchased	No				Each	0.0000	1	1			

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

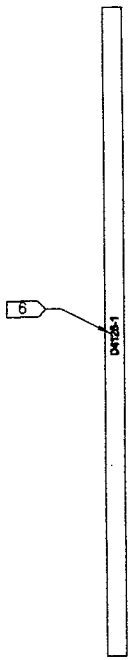
Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

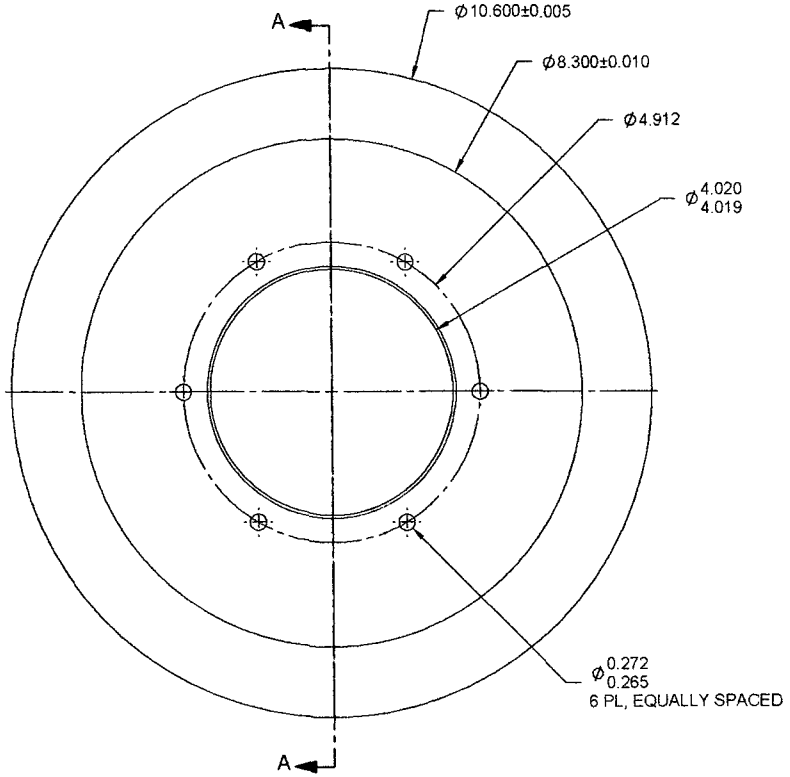
Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

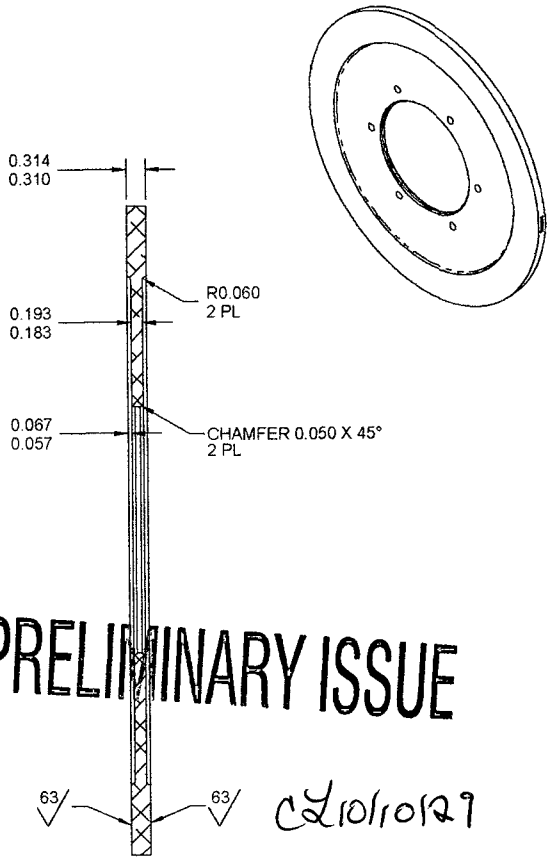
NOTE: Date & initial all entries

OPERATING PARAMETERS	
OPERATING TEMPERATURE (MAX.)	250°F
OPERATING TEMPERATURE (MIN.)	-40°F
ENGAGEMENT SPEED (NOMINAL)	2527 RPM
ENGAGEMENT SPEED (MAX.)	4422 RPM
ENGAGEMENT SPEED (MIN.)	1579 RPM
NOMINAL OPERATING SPEED	6317 RPM (100%)
MAXIMUM OPERATING SPEED	7580 RPM (120% OVERSPEED)





D4126-1 ROTOR BRAKE DISC



SECTION A-A

PRELIMINARY ISSUE

C2101029

NOTES:
1) MATERIAL: AISI 304/316 STAINLESS STEEL BAR
PER ASTM A276
REF DART SPEC M304B
2) FINISH: NONE
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D4126-1" AND B/N USING FINE POINT PERMANENT INK MARKER ON OD OF DISC AS SHOWN
7) WEIGHT: 5.26 lbs
8) BALANCING TO BE ACCOMPLISHED MOUNTED ON AN ARBOR HAVING A PILOT DIAMETER OF 4.0185 ±0.0005.
DISC BALANCING TO BE FACILITATED BY DRILLING Ø0.125 MAX HOLES RADIALLY IN DISC OD.
MINIMUM HOLE EDGE DISTANCE 0.060. MINIMUM HOLE SPACING 0.350. MAXIMUM HOLE DEPTH 0.40. BALANCE TO WITHIN 0.03 IN-OZ.

REV.	DESCRIPTION	BY	DATE
PA1	NEW ISSUE		10.06.11

DESIGN		DART AEROSPACE LTD
DRAWN		HAWKESBURY, ONTARIO, CANADA
CHECKED		DRAWING NO. D4126 — REV. PA1
MFG. APPR.		SHEET 1 OF 1
APPROVED		TITLE: ROTOR BRAKE DISC — SCALE: NTS
DE APPR.		
DATE	10.06.11	

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SPECIFICATION CONTROL DRAWING

△C PURCHASE MATERIAL: AISI 304/316 SS BAR OR AISI 304/316 SS PLATE
(NOTE: AISI 303 NOT ACCEPTABLE)

△C SPECIFICATION: ASTM A276 OR ASTM A240

PART NUMBER: M304B|T.TTT THICK|X|WW.WWW WIDTH|

WHERE "T.TTT" = THICKNESS IN INCHES
AND "WW.WWW" = WIDTH IN INCHES

△C EG. 0.5" x 3.0" BAR = M304B0.500X03.000
EG. 0.5" X 12.0" PLATE = M304B0.500X12.000

REFERENCE ONLY

RELEASED
2010-11-30

REV.	DESCRIPTION	BY	DATE
C	ADDED PLATE TO PURCHASE MATERIAL, ADDED PLATE RELATED SPECIFICATIONS, AND EG.; CHANGED TITLE FROM "304/316 BAR" TO "304/316 BAR/PLATE"	MB	10.11.25
B	REFORMAT DWG, ADD SPECS (ZN D6-1), REF PAR 08-020A	CP	09.07.15
A	NEW ISSUE	PH	05.06.10

DESIGN	DART AEROSPACE LTD	
DRAWN	HAWKESBURY, ONTARIO, CANADA	
CHECKED	DRAWING NO. M304B	REV. C
MFG. APPR.		SHEET 1 OF 1
APPROVED	TITLE 304/316 BAR/PLATE	SCALE NTS
DE APPR.		
DATE 10.11.25		

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Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO12840

Purchase Order Date 10/29/2010
PO Print Date 10/29/2010

Order From : VC-ELP001

ELPA INCORPORATED
2165 STE. ANNE ROAD
PO BOX 320
L'ORIGNAL , ONTARIO K0B 1K0

Contact Name		**Buyer**	Brigitte Golden
Vendor Phone	613-675-2326	**Requisition Nbr**	
Vendor Fax	613-675-2934	**Tax Resale Nbr**	10127-2607
Vendor Account Nbr		**Terms**	Net 30
		Currency	CAD
		FOB	Destination-Collect

Ship To : DART AEROSPACE LTD 1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

FAXED 6/10/2010

Line Nbr	Reference / Revision ID / Vendor Part Number	Description / Mfg ID	Req Date / Taxable	Req Qty / Unit of Measure	Ship Method	Unit Price	Extended Price
2	D4126-1P	Rotor Brake Disc	11/30/2010 Yes	1.00 Each	Yours ppd	$346.9200	$346.92

Special Inst: AS PER DRAWING D4126, REV.PA1
B#63415
BALANCING IS NOT REQUIRED

PO Total: **$346.92**

MATERIAL CERTIFICATION REQ'D UPON DELIVERY

CERTIFICATE OF CONFORMITY REQ'D UPON DELIVERY

No substitution or deviation without consent.
Certificate of Conformity or Material Certification required when applicable

Change Nbr: 1 **Change Date:** 10/29/2010

Elpa Incorporated
2165, Ste. Anne Road
P.O. box 320
L'Orignal, ON K0B 1K0
Phone: 613-675-2326
Fax: 613-675-2934

Certificate of Conformance

To: DART Aerospace Ltd
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Canada

From: Elpa Incorporated
2165, Ste. Anne Road
P.O. box 320
L'Orignal, ON K0B 1K0

Packing List No: 7844 **Today's Date:** 01/07/11
Shipping Date: 12/03/10 **PO Number:** 12840

Metallurgical Test Report # 559735 6 attached to Elpa's Certificate of Conformance.

Quantity Shipped	Unit	Description	Revision	Job Number
1	EA	D4126 Rotor Brake Disk. D4126, (prototype) No balancing included	PA1	5314-01

This is to certify that the products and/or services have been manufactured, inspected, tested and unless otherwise stated above conform in all respects with the specified requirements of the purchase order.

Shipped 07 to PA1
Dup only

AG

Inspector's Initials
Elpa Incorporated

Authorized Signature
Elpa Incorporated

METALLURGICAL TEST REPORT

NORTH AMERICAN STAINLESS
6870 HIGHWAY 42 EAST
GHENT, KY 41045

6870 HIGHWAY 42 EAST

Certificate: 559735 6

Customer: 007025 001

Mail To:
SAMUEL & FILS & CIE
2225 FRANCIS HUGHES
LAVAL, QC H7S1N5

Ship To:
SAMUEL & FILS & CIE
2225 FRANCIS HUGHES
LAVAL, QC H7S1N5

Date: 5/12/2010 Page: 1

Steel: 304/304L

Finish: HRAP

Your Order: C11940

NAS Order: PN 0009315 03

Corrosion: ASTM A262/02aE;180Bend-OK

PRODUCT DESCRIPTION:

STAINLESS STEEL PLATE, HRAP; UNS 30400/30403
ASTM A240/09c,A480/09,A666/03; ASME SA240/09b,SA480/09b,SA666/09b
CHEM ONLY ON FOLLOWING ASTM: A276/09a,A479/08,A484/08,A312/08a
CHEM ONLY ON FOLLOWING ASME: SA312/07,SA479/07
AMS5511R/5513H XMRK; MIL-S-5059D AMD3(X CHN MEAS); MIL-S-4043E
NACE MR0175/01, MR0103/07; QQS766D-A X MAG PERM
MIN. SOLUTION ANNEAL TEMP 1900F, WATER QUENCHED
ASME Sect. II, 1995 Edition, 1996 & 1997 Addenda

REMARKS:

Mat'l is Free of Mercury Contamination. No weld repairs.
EN 10204:2004 3.1; QQS763F Cond A; RoHS Compliant
Material is Free of Radioactive Contamination
NAS Steel Making Process: EAF, AOD, & Cont. Casting
Product Mfg.by a Quality Mgt.Sys. in Conf. w/ISO 9001:2000
*Melted & Manufactured in the USA; Mat'l is DFARs Compliant

8/11/10 to PA1 Dy only

P147238

Product Id	Plate#	Skid #	Thickness	Width	Weight	-------Length------	Mark	Pieces	Commodity Code
IA0782 FD	026RP2 FD		.4960	60.0000	1,040	PLATE 120.00	9	1	N/A

CHEMICAL ANALYSIS

CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan)

HEAT	CM	C	CR	CU	MN	MO	N	NI	P	S
6RP2	US	.0181	18.3005	.4435	1.7855	.3165	.0717	8.0650	.0345	.0010
		SI								
		.2210								

MECHANICAL PROPERTIES

Product Id#	Plate#	Id Loc	Dir	UTS KSI	.2% YS KSI	ELONG %-2"	Hard RB	R of A %
IA0782 FD	026RP2 FD	F	T	90.16	41.75	61.88	76.50	73.74

NAS hereby certifies that the analysis on this certification is correct and the material meets the specifications stated.

QC ENGINEER _____ 5/12/2010
ERIC HESS